CONTENTS OF VOLUME 28

Volume 28, No. 1, 1996

Editorial 1

Roundtable Discussion

Exercise and Cardiovascular Disease Risk in Women: Interaction with Selected Endocrine Factors
Editors: Nanette K. Wenger and Barbara L. Drinkwater

Preventive coronary interventions for women
Nanette K. Wenger 3

Hypertension and cardiovascular disease risk in women
Udho Thadani 7

Physical inactivity and cardiovascular disease in women
Steven N. Blair 9

Oral contraceptive use and coronary and cardiovascular risk
Ronald T. Burkman 11

Lipids, estrogen status, and coronary heart disease risk in women
Margo A. Denke 13

Diabetes mellitus and risk of cardiovascular disease in women
Caren G. Solomon 15

Postmenopausal hormone replacement therapy and cardiovascular disease risk
Murray Freedman 17

Clinical Sciences

Clinical Investigations

Physical training, lifestyle education, and coronary risk factors in obese girls
Bernard Gutin, Nicholas Cucuzzo, Syed Islam, Clayton Smith, and Max E. Stachura 19

Hemodynamic patterns and duration of post-dynamic exercise hypotension in hypertensive humans
Patricia A. Rueckert, Peter R. Slane, Diane L. Lillis, and Peter Hanson 24

Athletic heart: a metabolic, anatomical, and functional study
Anu K. Turpeinen, Jyrki T. Kuikka, Esko Vanninen, Pauli Vainio, Ritva Vanninen, Hannu Litmanen, Veikko A. Koivisto, Kim Bergström, and Matti I. J. Uusitupa 33

Metabolic and hormonal responses to low-impact aerobic dance during pregnancy
Robert G. McMurray, Anthony C. Hackney, W. Kent Guion, and Vern L. Katz 41

Adherence in the Training Levels Comparison Trial
Jeannette Y. Lee, Betsy E. Jensen, Albert Oberman, Gerald F. Fletcher, Barbara J. Fletcher, and James M. Raczynski 47

Clinical Review

Exercise testing and training of patients with malignant ventricular arrhythmias
Thomas M. Kelly 53

Basic Sciences/Regulatory Physiology

Original Investigations

Coronary α_1-adrenergic constrictor tone varies with intensity of exercise
Jeffrey M. Dodd-O and Patricia A. Gwirtz 62

Effect of the slow-component rise in oxygen uptake on $\dot{V}O_{2max}$
Mark A. Sloniger, Kirk J. Cureton, Dario I. Carrasco, Barry M. Prior, David A. Rowe, and Raymond W. Thompson 72

Dystrophin, vinculin, and aciculin in skeletal muscle subject to chronic use and disuse
Mojgan Rezvani, Olga I. Ornatsky, Michael K. Connor, Herbert A. Eisenberg, and David A. Hood 79

The influence of physical activity on BMR
Anders M. Sjödin, Anders H. Forslund, Klaas R. Westerterp, Agneta B. Andersson, Jeanette M. Forslund, and Leif M. Hambræus 85

Epidemiology

Tracking of physical activity in young children
Russell R. Pate, Tom Baranowski, Marsha Dowda, and Stewart G. Trost 92

The association between cardiorespiratory fitness and prostate cancer
Susan A. Oliveria, Harold W. Kohl III, Dimitrios Trichopoulos, and Steven N. Blair 97

Previous physical activity relates to bone mineral measures in young women
Dorothy Teegarden, William R. Proulx, Mark Kern, Darlene Sedlock, Connie M. Weaver, C. Conrad Johnston, and Roseann M. Lyle 105

CONTENTS OF VOLUME 28

Volume 28, No. 1, 1996

Editorial 1

Roundtable Discussion

Exercise and Cardiovascular Disease Risk in Women: Interaction with Selected Endocrine Factors
Editors: Nanette K. Wenger and Barbara L. Drinkwater

Preventive coronary interventions for women
Nanette K. Wenger 3

Hypertension and cardiovascular disease risk in women
Udho Thadani 7

Physical inactivity and cardiovascular disease in women
Steven N. Blair 9

Oral contraceptive use and coronary and cardiovascular risk
Ronald T. Burkman 11

Lipids, estrogen status, and coronary heart disease risk in women
Margo A. Denke 13

Diabetes mellitus and risk of cardiovascular disease in women
Caren G. Solomon 15

Postmenopausal hormone replacement therapy and cardiovascular disease risk
Murray Freedman 17

Clinical Sciences

Clinical Investigations

Physical training, lifestyle education, and coronary risk factors in obese girls
Bernard Gutin, Nicholas Cucuzzo, Syed Islam, Clayton Smith, and Max E. Stachura 19

Hemodynamic patterns and duration of post-dynamic exercise hypotension in hypertensive humans
Patricia A. Rueckert, Peter R. Slane, Diane L. Lillis, and Peter Hanson 24

Athletic heart: a metabolic, anatomical, and functional study
Anu K. Turpeinen, Jyrki T. Kuikka, Esko Vanninen, Pauli Vainio, Ritva Vanninen, Hannu Litmanen, Veikko A. Koivisto, Kim Bergström, and Matti I. J. Uusitupa 33

Metabolic and hormonal responses to low-impact aerobic dance during pregnancy
Robert G. McMurray, Anthony C. Hackney, W. Kent Guion, and Vern L. Katz 41

Adherence in the Training Levels Comparison Trial
Jeannette Y. Lee, Betsy E. Jensen, Albert Oberman, Gerald F. Fletcher, Barbara J. Fletcher, and James M. Raczynski 47

Clinical Review

Exercise testing and training of patients with malignant ventricular arrhythmias
Thomas M. Kelly 53

Basic Sciences/Regulatory Physiology

Original Investigations

Coronary α_1-adrenergic constrictor tone varies with intensity of exercise
Jeffrey M. Dodd-O and Patricia A. Gwirtz 62

Effect of the slow-component rise in oxygen uptake on $\dot{V}O_{2max}$
Mark A. Sloniger, Kirk J. Cureton, Dario I. Carrasco, Barry M. Prior, David A. Rowe, and Raymond W. Thompson 72

Dystrophin, vinculin, and aciculin in skeletal muscle subject to chronic use and disuse
Mojgan Rezvani, Olga I. Ornatsky, Michael K. Connor, Herbert A. Eisenberg, and David A. Hood 79

The influence of physical activity on BMR
Anders M. Sjödin, Anders H. Forslund, Klaas R. Westerterp, Agneta B. Andersson, Jeanette M. Forslund, and Leif M. Hambræus 85

Epidemiology

Tracking of physical activity in young children
Russell R. Pate, Tom Baranowski, Marsha Dowda, and Stewart G. Trost 92

The association between cardiorespiratory fitness and prostate cancer
Susan A. Oliveria, Harold W. Kohl III, Dimitrios Trichopoulos, and Steven N. Blair 97

Previous physical activity relates to bone mineral measures in young women
Dorothy Teegarden, William R. Proulx, Mark Kern, Darlene Sedlock, Connie M. Weaver, C. Conrad Johnston, and Roseann M. Lyle 105

Applied Sciences

Biodynamics

Running velocity at $\dot{V}O_{2max}$
David W. Hill and Amy L. Rowell 114

Compromised oxygen uptake in speed skaters during treadmill in-line skating
Kenneth W. Rundell 120

Kinematics of cross-country ski racing
Bernard Bilodeau, Kenneth W. Rundell, Benoît Roy, and Marcel R. Boulay 128

Physical Fitness and Performance

Effects of chromium and resistive training on muscle strength and body composition
Melissa A. Hallmark, Thomas H. Reynolds, Chris A. DeSouza, Charles O. Dotson, Richard A. Anderson, and Marc A. Rogers 139

Isometric intermittent endurance of four muscle groups in men aged 20–74 yr
Michael G. Bemben, Benjamin H. Massey, Debra A. Bemben, James E. Misner, and Richard A. Boileau 145

Corrigenda 154

Book Reviews 155

Reviewers for 1995 157

ACSM Position Stand: Exercise and Fluid Replacement i

Information for Authors viii

Volume 28, No. 2, 1996

Clinical Studies

Case Study

Bilateral anterior inferior iliac spine avulsion fractures
Jorge E. Gomez 161

Clinical Investigations

Low-back pain in adolescent athletes
Urho M. Kujala, Simo Taimela, Minna Erkintalo, Jouko J. Salminen, and Jaakko Kaprio 165

Influence of post-surgery time after cardiac transplantation on exercise responses
Jacques Mercier, Nathalie Ville, Pierre Wintrebert, Corinne Caillaud, Alain Varray, Bernard Albat, André Thévenet, and Christian Préfaut 171

Lipoprotein (a) and cholesterol in body builders using anabolic androgenic steroids
Larry I. Cohen, Craig G. Hartford, and Geoff G. Rogers 176

Clinical Review

The male reproductive system and endurance exercise
Anthony C. Hackney 180

Basic Sciences

Original Investigations

Left ventricular function during exercise in athletes in sedentary men
Vitantonio Di Bello, Gino Santoro, Luigi Talarico, Carmine Di Muro, Maria Teresa Caputo, Davide Giorgi, Alessio Bertini, Massimiliano Bianchi, and Costantino Giusti 190

The effects of heat and exercise on sweat iron loss
Mary F. Waller and Emily M. Haymes 197

Brain norepinephrine and metabolites after treadmill training and wheel running in rats
Andrea L. Dunn, Thomas G. Reigle, Shawn D. Youngstedt, Robert B. Armstrong, and Rod K. Dishman 204

Brief Review

Heart rate control during exercise by baroreceptors and skeletal muscle afferents
Donal S. O'Leary 210

Applied Sciences

Biodynamics

High- and low-bar squatting techniques during weight-training
Per Wretenberg, Yi Feng, and Ulf P. Arborelius 218

Relationship between rearfoot and forefoot orientation and ground reaction forces during running
Philippe Freychat, Alain Belli, Jean-Paul Carret, and Jean-Rene Lacour 225

Epidemiology

Evaluation of smoking on the physical activity and depressive symptoms relationship
David R. Brown, Janet B. Croft, Robert F. Anda, Drue H. Barrett, and Luis G. Escobedo 233

Physical Fitness and Performance

Determination of maximal lactate steady state response in selected sports events
Ralph Beneke and Serge Petelin von Duvillard 241

Exercise responses to running and in-line skating at self-selected paces
Edward L. Melanson, Patty S. Freedson, Russ Webb, Stephen Jungbluth, and Natalie Kozlowski 247

Modeled responses to training and taper in competitive swimmers
Iñigo Mujika, Thierry Busso, Lucien Lacoste, Fréderic Barale, André Geyssant, and Jean-Claude Chatard 251

Special Communications

Methods

Scaling peak $\dot{V}O_2$ for differences in body size
Joanne R. Welsman, Neil Armstrong, Alan M. Nevill, Edward M. Winter, and Brian J. Kirby 259

A new validated endurance performance test
Asker Jeukendrup, Wim H. M. Saris, Fred Brouns, and Arnold D. M. Kester 266

Technical Note

Assessment of chlorine exposure in swimmers during training
Franchek Drobnic, Assumpció Freixa, Pere Casan, Joaquín Sanchis, and Xavier Guardino 271

Book Reviews 275

Volume 28, No. 3, 1996

Clinical Sciences

Case Report

Tenosynovitis of the flexor hallucis longus in a long-distance runner
George H. Theodore, George J. Kolettis, and Lyle J. Micheli 277

Clinical Investigations

The effects of acute exercise on gallbladder function in an adult female population
Alan C. Utter, Fredric L. Goss, David C. Whitcomb, Manuel L. Brown, Joseph P. Pusateri, Andrea M. Kriska, Sergio G. Dasilva, and Robert J. Robertson 280

Plasma glutamine and upper respiratory tract infection during intensified training in swimmers
Laurel Traeger Mackinnon and Sue L. Hooper 285

Factors limiting anaerobic performance in adolescent males with cystic fibrosis
Steven R. Boas, Monica L. Joswiak, Patricia A. Nixon, Judith A. Fulton, and David M. Orenstein 291

A new method for quantifying pronation in overpronating and normal runners
Jack R. Engsberg 299

Basic Sciences

Regulation of oxidative metabolism and blood flow in skeletal muscle: summary report of the First ACSM Basic Science Speciality Conference
Paul C. Johnson, Peter D. Wagner, and David F. Wilson 305

Anaerobic ATP production and accumulated O_2 deficit in cyclists
Simon Green, Brian T. Dawson, Carmel Goodman, and Michael F. Carey 315

Epidemiology

Review

Does physical activity reduce risk of estrogen-dependent cancer in women?
Mary M. Kramer and Christine L. Wells 322

Physical activity, nutrition, and chronic disease
Steven N. Blair, Edward Horton, Arthur S. Leon, I-Min Lee, Barbara L. Drinkwater, Rod K. Dishman, Maureen Mackey, and Michelle L. Kienholz 335

Applied Sciences

Biodynamics

Lateral stability in sideward cutting movements
Alex Stacoff, Jürg Steger, Edgar Stüssi, and Christoph Reinschmidt 350

Physical Fitness and Performance

Differences in ultra-endurance exercise in performance-matched male and female runners
David P. Speechly, Sheila R. Taylor, and Geoffrey G. Rogers 359

Cardiorespiratory capacity of individuals with mental retardation including Down syndrome
Bo Fernhall, Kenneth H. Pitetti, James H. Rimmer, Jeffery A. McCubbin, Pauli Rintala, A. Lynn Millar, Jennifer Kittredge, and Lee N. Burkett 366

Psychobiology and Social Sciences

Mood, neuromuscular function, and performance during training in female swimmers
John S. Raglin, David M. Koceja, Joel M. Stager, and Craig A. Harms 372

Variability in precompetition anxiety and performance in college track and field athletes
Paul E. Turner and John S. Raglin 378

Special Communications

Statistics

The effects of sample size and variability on the correlation coefficient
Barry T. Bates, Songning Zhang, Janet S. Dufek, and Fang C. Chen 386

Methods

Methodological effects on the $\dot{V}O_2$-power regression and the accumulated O_2 deficit
Simon Green and Brian T. Dawson 392

Book Reviews 398

Volume 28, No. 4, 1996

Editorial 401

Clinical Sciences

Symposium: The Role of Exercise in the Diagnosis and Management of Chronic Disease in Children and Youth

Chairperson: Teresa L. Tomassoni

Introduction: the role of exercise in the diagnosis and management of chronic disease in children and youth
Teresa L. Tomassoni 403

Role of exercise in the management of cardiovascular disease in children and youth
Teresa L. Tomassoni 406

Role of exercise in the evaluation and management of pulmonary disease in children and youth
Patricia A. Nixon 414

Role of exercise in the assessment and management of neuromuscular disease in children
Oded Bar-Or 421

Exercise in treating obesity in children and adolescents
Leonard H. Epstein, Karen J. Coleman, and Michelle D. Myers 428

Basic Sciences

Original Investigations

Almost simultaneous measurement of cardiovascular and gas exchange variables during maximal exercise
Archie F. Wilson, Sunil Savariryan, Norman James, David Mukai, and Earl Nishimura 436

Increase in occlusion pressure with ventilation and response to maximal exercise
Thierry Busso, Henri Benoit, Régis Bonnefoy, Josiane Castells, Christian Denis, Jean-René Lacour, and André Geyssant 444

Effects of active recovery on plasma lactate and anaerobic power following repeated intensive exercise
Said Ahmaidi, Pascale Granier, Zohra Taoutaou, Jacques Mercier, Hervé Dubouchaud, and Christian Prefaut 450

Hemodynamic and regional blood flow responses to nicotine at rest and during exercise
J. David Symons and Charles L. Stebbins 457

Epidemiology

Evaluation of the Revised Physical Activity Readiness Questionnaire in older adults
Bradley J. Cardinal, Jacqueline Esters, and Marita K. Cardinal 468

Applied Sciences

Biodynamics

Somatosensory-evoked potentials in athletes
Natasha G. Thomas and Duncan Mitchell 473

Physical Fitness and Performance

Effect of *Eleutherococcus senticosus on submaximal and maximal exercise performance*
Elizabeth A. Dowling, Diego R. Redondo, J. David Branch, Sharon Jones, Gregory McNabb, and Melvin H. Williams 482

Psychobiology and Social Sciences

The validity of regulating blood lactate concentration during running by ratings of perceived exertion
Nancy M. Stoudemire, Laurie Wideman, Kimberly A. Pass, Christina L. McGinnes, Glenn A. Gaesser, and Arthur Weltman 490

Special Communications

Methods

Heart rate monitoring to assess energy expenditure in children with reduced physical activity
Rita J. G. Van Den Berg-Emons, Wim H. M. Saris, Klaas R. Westerterp, and Marleen A. Van Baak 496

Ambient noise interferes with auscultatory blood pressure measurement during exercise
J. Timothy Lightfoot, Betty Tuller, and Dale F. Williams 501

Assessment of the Aerosport TEEM 100 Portable Metabolic Measurement System
Laurie Wideman, Nancy M. Stoudemire, Kimberly A. Pass, Christina L. McGinnes, Glenn A. Gaesser, and Arthur Weltman 509

A method of measuring standing isokinetic plantar and dorsiflexion peak torques
Michelle M. Porter, Anthony A. Vandervoort, and John F. Kramer 516

Validity of bioelectrical impedance equations for estimating percent fat in males
Joan M. Eckerson, Jeffrey R. Stout, Terry J. Housh, and Glen O. Johnson 523

Technical Note

A new skate allowing powerful plantar flexions improves performance
Gerrit Jan Van Ingen Schenau, Gert De Groot, A. Wim Scheurs, Hans Meester, and Jos J. De Koning 531

Book Reviews 536

Obituary 538

Volume 28, No. 5, 1996

Clinical Sciences

Case Study

Exercise-induced death in sickle cell trait: role of aging, training, and deconditioning
Daniel Le Gallais, Alphonse Bilé, Jacques Mercier, Marc Paschel, Jean Louis Tonellot, and Jean Dauverchain 541

Clinical Investigations

Amenorrhea in ballet dancers in the Netherlands
Mikael Fogelholm, Wouter Van Marken Lichtenbelt, Ramon Ottenheijm, and Klaas Westerterp 545

Changes in physical strain and physical capacity in men with spinal cord injuries
Thomas W. J. Janssen, C. A. J. M. (Lidy) VAN Oers, Edith E. P. Rozendaal, E. M. (Lize) Willemsen, A. Peter Hollander, and Luc H. V. van der Woude 551

Physique as a risk factor for ulnar variance in elite female gymnasts
Albrecht L. Claessens, Johan Lefevre, Gaston Beunen, Luc De Smet, and Alfons M. Veer 560

Basic Sciences/Regulatory Physiology

Symposium: Exercise and Medical Demands of SCUBA Diving

Historical and basic perspectives of SCUBA diving
Peter R. Lynch 570

Energetics of underwater swimming with SCUBA
D. R. Pendergast, M. Tedesco, D. M. Nawrocki, and N. M. Fisher 573

Cardiovascular and thermal responses to SCUBA diving
Thomas J. Doubt 581

Diagnosis and management of diving accidents
David J. Smith 587

Medical aspects of sport diving
Alfred A. Bove 591

Epidemiology

The epidemiology of physical activity and physical function in older people
Loretta DiPietro 596

Maximal exercise hemodynamics and risk of mortality in apparently healthy men and women
Harold W. Kohl III, Milton Z. Nichaman, Ralph F. Frankowski, and Steven N. Blair 601

Applied Sciences

Biodynamics

Age, fat-free weight, and isokinetic peak torque in high school female gymnasts
Terry J. Housh, Glen O. Johnson, Dona J. Housh, Joseph P. Weir, Loree L. Weir, Joan M. Eckerson, and Jeffrey R. Stout 610

Comparison of critical speed determined from track running and treadmill tests in elite runners
Kathleen J. Kranenburg and David J. Smith 614

Psychobiology and Social Services

Life adjustment correlates of physical self-concepts
Robert J. Sonstroem and Stephanie A. Potts 619

Special Communications

Statistics

Multivariate allometric scaling of men's world indoor rowing championship performance
Paul M. Vanderburgh, Frank I. Katch, Joseph Schoenleber, Christos Balabinis, and Rob Elliott 626

Single-Subject Design

Single-subject methodology: an alternative approach
Barry T. Bates 631

Statistical considerations in the use and analysis of single-subject designs
David M. Reboussin and Timothy M. Morgan 639

Memorial Statement

G. Lawrence Rarick 645

Volume 28, No. 6, 1996

Clinical Sciences

Clinical Investigations

Effects of endurance training on the circadian rhythm of fibrinolysis in men and women
Wayne L. Chandler, Robert S. Schwartz, John R. Stratton, and Michael V. Vitiello 647

Pressor response to isometric exercise in patients with multiple sclerosis
Eric B. Pepin, Richard W. Hicks, Mark K. Spencer, Zung V. Tran, and Catherine G. R. Jackson 656

EMG analysis of shoulder positioning in testing and strengthening the supraspinatus
Gerard A. Malanga, Yue-Nan Jenp, Eric S. Growney, and Kai-Nan An 661

Basic Sciences/Regulatory Physiology

Original Investigations

Olympics in Atlanta: a fight against physics
Bodil Nielsen 665

Effects of clenbuterol on contractile and biochemical properties of skeletal muscle
Stephen L. Dodd, Scott K. Powers, Ioannis S. Vrabas, David Criswell, Scott Stetson, and Ruby Hussain 669

Onset of exercise increases lumbar sympathetic nerve activity in rats
Stephen E. DiCarlo, Chao-Yin Chen, and Heidi L. Collins 677

Ventilatory sensitivity to carbon dioxide: the influence of exercise and athleticism
Alison K. McConnell and Edward S. G. Semple 685

Effect of $NaHCO_3$ on lactate kinetics in forearm muscles during leg exercise in man
Pascale L. Granier, Hervé Dubouchaud, Béatrice M. Mercier, Jacques G. Mercier, Said Ahmaidi, and Christian G. Préfaut 692

Gastrointestinal permeability following aspirin intake and prolonged running
Alan J. Ryan, Ray-Tai Chang, and Carl V. Gisolfi 698

Epidemiology

Increasing physical activity: a quantitative synthesis
Rod K. Dishman and Janet Buckworth 706

Physical activity, lipids, apolipoproteins, and Lp (a) in the Northern Ireland Health and Activity Survey
Domhnall MacAuley, Evelyn E. McCrum, Gillian Stott, Alun E. Evans, Ellie Duly, Tom R. Trinick, Kevin Sweeney, and Colin A. G. Boreham 720

Applied Sciences

Biodynamics

The association between flexibility and running economy in sub-elite male distance runners
Mitchell W. Craib, Vicki A. Mitchell, Karl B. Fields, Theresa R. Cooper, Regina Hopewell, and Don W. Morgan 737

Theoretical basis for patterning EMG amplitudes to assess muscle dysfunction
V. Reggie Edgerton, Steven L. Wolf, Daniel J. Levendowski, and Roland R. Roy 744

Physical Fitness and Performance

Predicting functional capacity during treadmill testing independent of exercise protocol
Carl Foster, Amy J. Crowe, Erin Daines, Maurice Dumit, Megan A. Green, Stacey Lettau, Nancy N. Thompson, and Jean Weymier 752

The effect of endurance training on lipoprotein (a) Lp (a) levels in middle-aged males
Lyle Hubinger and Laurel Traeger Mackinnon 757

Special Communications

Technical Note

Effects of drafting during short-track speed skating
Kenneth W. Rundell 765

Book Reviews 772

ACSM Position Stand: The Use of Blood Doping as an Ergogenic Aid i

ACSM Position Stand: Weight Loss in Wrestlers ix

Volume 28, No. 7, 1996

Editorial 775

Clinical Sciences

Clinical Investigations

Bone density and cyclic ovarian function in trained runners and active controls
Kerri M. Winters, William C. Adams, Carol N. Meredith, Marta D. Van Loan, and Bill L. Lasley 776

Regional fat placement in physically fit males and changes with weight loss
Bradley C. Nindl, Karl E. Friedl, Louis J. Marchitelli, Ronald L. Shippee, Cecilia D. Thomas, and John F. Patton 786

Prognostic significance of peak oxygen uptake in hypertension
Karel Pardaens, Tony Reybrouck, Lutgarde Thijs, and Robert Fagard 794

Short endurance training improves lactate removal ability in patients with heart transplants
E. Lampert, S. Oyono-Enguéllé, B. Mettauer, H. Freund, and J. Lonsdorfer 801

Estimation of $\dot{V}O_2$ in older individuals with osteoarthritis of the knee and cardiovascular disease
Michael J. Berry, Peter H. Brubaker, Mary L. O'Toole, W. Jack Rejeski, Judy Soberman, Paul M. Ribisl, Henry S. Miller, Richard F. Afable, William Applegate, and Walter H. Ettinger 808

Basic Sciences/Regulatory Physiology

Original Investigations

Unilateral carotid sinus stimulation and muscle sympathetic nerve activity in man
Jon W. Williamson, Michael Muzi, and Thomas J. Ebert 815

Lymphocyte subset responses to exercise and glucocorticoid suppression in healthy men
Anita Singh, Elzbieta B. Zelazowska, John S. Petrides, Richard B. Raybourne, Esther M. Sternberg, Philip W. Gold, and Patricia A. Deuster 822

Endurance exercise training has a minimal effect on resting heart rate: the HERITAGE study
Jack H. Wilmore, Philip R. Stanforth, Jacques Gagnon, Arthur S. Leon, D. C. Rao, James S. Skinner, and Claude Bouchard 829

Ankle to arm index following maximal exercise in normal subjects and athletes
Bénédicte Desvaux, Pierre Abraham, Denis Colin, Georges Leftheriotis, and Jean Louis Saumet 836

Epidemiology

Validation of interviewer- and self-administered physical activity checklists for fifth grade students
James F. Sallis, Patricia K. Strikmiller, David W. Harsha, Henry A. Feldman, Sally Ehlinger, Elaine J. Stone, Jean Williston, and Sherry Woods 840

Physical and sedentary activity in school children grades 5–8: the Bogalusa Heart Study
Leann Myers, Patricia K. Strikmiller, Larry S. Webber, and Gerald S. Berenson 852

Applied Sciences

Biodynamics

Six weeks of training does not change running mechanics or improve running economy
Mark J. Lake and Peter R. Cavanagh 860

Selective muscle activation following rapid varus/valgus perturbations at the knee
Thomas S. Buchanan, Anthony W. Kim, and David G. Lloyd 870

Physical Fitness and Performance

Resistance training-induced increases in muscle mass and performance in ponies
Robert W. Heck, Kenneth H. McKeever, Stephen E. Alway, Wayne K. Auge, Robert Whitehead, Alicia L. Bertone, and John A. Lombardo 877

Changes in aerobic power of women, ages 20–64 years
Andrew S. Jackson, Larry T. Wier, Greta W. Ayers, Earl F. Beard, Joseph E. Stuteville, and Steven N. Blair 884

Cardiovascular and peak $\dot{V}O_2$ responses to supine exercise: effects of age and training status
David N. Proctor, Wayne E. Sinning, Donald L. Bredle, and Michael J. Joyner 892

Special Communications

Methods

Gravitational moment correction in isokinetic dynamometry using anthropometric data
Eleftherios Kellis and Vasilios Baltzopoulos 900

Total and segmental subcutaneous adipose tissue volume measured by ultrasound
Takashi Abe, Fumiko Tanaka, Yasuo Kawakami, Kohki Yoshikawa, and Tetsuo Fukunaga 908

Validity and reliability of the BTE Dynatrac
James G. Richards, Edward J. Quigley, Patrick W. Castagno, and Robert E. Neeves 913

The equilibrium CO_2 rebreathing method does not affect resting or exercise blood pressure
Michael J. Turner, Hirofumi Tanaka, David R. Bassett, Jr., and Thomas R. Fitton 921

Cross-validation of non-exercise predictions of $\dot{V}O_{2peak}$ in women
Henry N. Williford, Michele Scharff-Olson, Naizhen Wang, Daniel L. Blessing, Furman H. Smith, and William J. Duey 926

Letters to the Editor

Exercise science and the information highway
Mark A. Pereira, Ronald E. Laporte, Shannon J. Fitzgerald, Deborah J. Aaron, Harold W. Kohl, and Stephen R. Dearwater 931

Response
Peter B. Raven 932

Cross-sectional area of muscle
Edward M. Winter 934

Response
Daniel J. McCann, Michael J. Castro, James D. Shaffrath, and William C. Adams 934

Book Reviews 936

Corrigendum 938

Information for Authors i

Volume 28, No. 8, 1996

Clinical Sciences

Clinical Investigations

Risk factors predicting exertional heat illness in male Marine Corps recruits
John W. Gardner, John A. Kark, Karen Karnei, Jill S. Sanborn, Edward Gastaldo, Peggy Burr, and C. Bruce Wenger 939

Lower limb morphology and risk of overuse injury among male infantry trainees
David N. Cowan, Bruce H. Jones, Peter N. Frykman, David W. Polly, Jr., Everett A. Harman, Richard M. Rosenstein, and Michael T. Rosenstein 945

Clinically Relevant Studies

Changes in indicators of inflammation after eccentric exercise of the elbow flexors
Kazunori Nosaka and Priscilla M. Clarkson 953

Lipoprotein (a) in endurance athletes, power athletes, and sedentary controls
Martin Halle, Aloys Berg, Thomas von Stein, Manfred W. Baumstark, Daniel König, and Joseph Keul 962

Body mass index and daily physical activity in anorexia nervosa
Carlijn V. Bouten, Wouter D. van Marken Lichtenbelt, and Klaas R. Westerterp 967

Basic Sciences

Symposium: Physiological Adaptations and Countermeasures Associated with Long-Duration Spaceflights

Chairperson: Charles M. Tipton

Physiological adaptations and countermeasures associated with long-duration spaceflights
Charles M. Tipton and Alan Hargens 974

Cardiovascular adaptation to spaceflight
Alan R. Hargens and Donald E. Watenpaugh 977

Effect of spaceflight on the functional, biochemical, and metabolic properties of skeletal muscle
Kenneth M. Baldwin 983

Neuroendocrine and immune system responses with spaceflights
Charles M. Tipton, John E. Greenleaf, and Catherine G. R. Jackson 988

Exercise as a countermeasure for physiological adaptation to prolonged spaceflight
Victor A. Convertino 999

Original Investigation

Adaptation of the hypothalamopituitary adrenal axis to chronic exercise stress in humans
Gary A. Wittert, John H. Livesey, Eric A. Espiner, and Richard A. Donald 1015

Epidemiology

Repeatability and relative validity of two physical activity questionnaires in elderly women
Margreet A. Pols, Petra H. M. Peeters, Han C. G. Kemper, and Hubertine J. A. Collette 1020

Validity of selected physical activity questions in white Seventh-day Adventists and non-Adventists
Pramil N. Singh, Serena Tonstad, David E. Abbey, and Gary E. Fraser 1026

Applied Sciences

Biodynamics

Whole-body hyperhydration in endurance-trained males determined using radionuclide dilution
Graeme J. Maw, Ian L. MacKenzie, Des A. M. Comer, and Nigel A. S. Taylor 1038

The heart of the senior oarsman: an echocardiographic evaluation
Finn Gustafsson, Samir Ali, Birgitte Hanel, Jens C. Toft, and Niels H. Secher 1045

Physical Fitness and Performance

Gender effect on the relationship of time limit at 100% $\dot{V}O_{2max}$ with other bioenergetic characteristics
Veronique Billat, Jocelyne Beillot, Jacqueline Jan, Pierre Rochcongar, and Francois Carre 1049

Influence of water run training on the maintenance of aerobic performance
Randall L. Wilber, Robert J. Moffatt, Bradley E. Scott, Dae T. Lee, and Nicholas A. Cucuzzo 1056

Psychobiology and Social Sciences

Reported alcohol use and behavior in long-distance runners
Margaret E. Gutgesell, Mark Timmerman, and Adrienne Keller 1063

Special Communications

Technical Note

Accuracy of five electronic pedometers for measuring distance walked
David R. Bassett, Jr., Barbara E. Ainsworth, Sue R. Leggett, Clara A. Mathien, James A. Main, David C. Hunter, and Glen E. Duncan 1071

Book Reviews 1078

Volume 28, Number 9, 1996

Clinical Sciences

Clinical Investigations

Influence of different exercise protocols on functional capacity and symptoms in patients with chronic heart failure
Katharina Meyer, Eberhard Stengele, Sam Westbrook, Ralph Beneke, Matthias Schwaibold, Lothar Görnandt, Manfred Lehmann, and Helmut Roskamm 1081

Optimization of force in the Wingate Test for children with a neuromuscular disease
Edgar Van Mil, Nicole Schoeber, Randy E. Calvert, and Oded Bar-Or 1087

Clinically Relevant

Marathon medical services: strategies to reduce runner morbidity
Byron Crouse and Kate Beattie 1093

Influence of walking volume on health benefits in women post-menopause
A. Elizabeth Ready, Barbara Naimark, John Ducas, Jo-Ann V. Sawatzky, Suzanne L. Boreskie, Donald T. Drinkwater, and Sylvia Oosterveen 1097

Basic Sciences/Regulatory Physiology

Original Investigations

Symposium: Exercise and Respiratory Muscles

Chairpersons: Scott K. Powers and Jerome A. Dempsey

The contractility of the ventilatory pump muscles
Gaspar A. Farkas, Frank J. Cerny, and Dudley F. Rochester 1106

Adaptive strategies of respiratory muscles in response to endurance exercise
Scott K. Powers and David Criswell 1115

Respiratory muscle perfusion and energetics during exercise
Jerome A. Dempsey, Craig A. Harms, and Dorothy M. Ainsworth 1123

Respiratory muscle fatigue during exercise: implications for performance
Bruce D. Johnson, Elizabeth A. Aaron, Mark A. Babcock, and Jerome A. Dempsey 1129

Original Investigations

Effects of exercise intensity on 24-h energy expenditure and substrate oxidation
Margarita S. Treuth, Gary R. Hunter, and Martha Williams 1138

Forearm blood flow by Doppler ultrasound during rest and exercise: tests of day-to-day repeatability
J. Kevin Shoemaker, Zlatko I. Pozeg, and Richard L. Hughson 1144

Epidemiology

A 20-yr longitudinal study of Olympic oarsmen
Fredrick C. Hagerman, Roger A. Fielding, Maria A. Fiatarone, Janice A. Gault, Donald T. Kirkendall, Kerry E. Ragg, and William J. Evans 1150

Determinants of physical activity in obese children assessed by accelerometer and self-report
Leonard H. Epstein, Rocco A. Paluch, Karen J. Coleman, Dominica Vito, and Katarina Anderson 1157

Physical activity, fitness, and plasma fibrinogen with reference to fibrinogen genotypes
Sari Väisänen, Rainer Rauramaa, Tuomo Rankinen, Jacques Gagnon, and Claude Bouchard 1165

Subject-related risk factors for sports injuries: a 1-yr prospective study in young adults
Willem Van Mechelen, Jos Twisk, Alexander Molendijk, Bertel Blom, Jan Snel, and Han C. G. Kemper 1171

Applied Sciences

Biodynamics

Cross-sectional and longitudinal uses of isoinertial, isometric, and isokinetic dynamometry
Peter J. Abernethy and Jaak Jürimäe 1180

The effect of positioning on shoulder isokinetic measures in females
Laurie L. Tis and Tanya Maxwell 1188

Physical Fitness and Performance

Effect of inosine supplementation on aerobic and anaerobic cycling performance
Raymond D. Starling, Todd A. Trappe, Kevin R. Short, Melinda Sheffield-Moore, Alison C. Jozsi, William J. Fink, and David L. Costill 1193

Psychobiology and Social Sciences

Psychological consequences of exercise deprivation in habitual exercisers
Gregory W. Mondin, William P. Morgan, Peder N. Piering, Aaron J. Stegner, Christopher L. Stotesbery, Malani R. Trine, and Ming-Yi Wu 1199

Special Communications

Methods

Ratio scaling of $\dot{V}O_{2max}$ penalizes women with larger percent body fat, not lean body mass
Paul M. Vanderburgh and Frank Katch 1204

Technical Note

Numerical simulation of a turning alpine ski during recreational skiing
Yoichi Hirano and Noritaka Tada 1209

Book Reviews 1214

Volume 28, No. 10, 1996

Editorial 1217

Clinical Sciences

Case Study

Chiari I malformation and spinal cord injury: cause for concern in contact athletes?
G. Hadley Callaway, Stephen J. O'Brien, and Armin M. Tehrany 1218

Clinical Investigations

Changes in gas exchange kinetics with training in patients with spinal cord injury
Thomas J. Barstow, A. M. Erika Scremin, Deborah L. Mutton, Charles F. Kunkel, Thomas G. Cagle, and Brian J. Whipp 1221

Eccentric knee flexor torque following anterior cruciate ligament surgery
Louis R. Osternig, Charles R. James, and David T. Bercades 1229

Clinically Relevant

Reduction in postprandial lipemia after walking: influence of exercise intensity
Natassa V. Tsetsonis and Adrianne E. Hardman 1235

Bone mineral density in elite 7- to 9-yr-old female gymnasts and swimmers
Cynthia Cassell, Michael Benedict, and Bonny Specker 1243

Basic Sciences

NASA Roundtable

Musculoskeletal adaptations to weightlessness and development of effective countermeasures
Kenneth M. Baldwin (Co-Chair), Timothy P. White (Co-Chair), Sara B. Arnaud, V. Reggie Edgerton, William J. Kraemer, Rodger Kram, Diane Raab-Cullen, and Christine M. Snow 1247

Original Investigations

Relationship of peak exercise capacity with indices of peripheral muscle vasodilation
Epaminondas N. Kosmas, Sabah N. A. Hussain, Josep M. Montserrat, and Robert D. Levy 1254

Post-exercise rehydration in man: effects of volume consumed and drink sodium content
Susan M. Shirreffs, Andy J. Taylor, John B. Leiper, and Ronald J. Maughan 1260

Energy turnover in a sailing crew during offshore racing around the world
Stefan Branth, Leif Hambræus, Klaas Westerterp, Agneta Andersson, Ronnie Edsgren, Markus Mustelin, and Roger Nilsson 1272
Effect of a single session of exercise on lipoprotein(a)
J. L. Durstine, M. A. Ferguson, L. M. Szymanski, P. G. Davis, N. L. Alderson, S. G. Trost, and R. R. Pate 1277

Epidemiology

The Recall of Physical Activity: Using a Cognitive Model of the Question-Answering Process
Richard Durante and Barbara E. Ainsworth 1282

Applied Sciences

Physical Fitness and Performance

Effect of weight loss and refeeding diet composition on anaerobic performance in wrestlers
Janet Walberg Rankin, Jeff V. Ocel, and Laura L. Craft 1292
Effect of timing of carbohydrate ingestion on endurance exercise performance
Glenn McConell, Kate Kloot, and Mark Hargreaves 1300
Performance-influencing factors in homogeneous groups of top athletes: a cross-sectional study
Gerrit Jan van Ingen Schenau, Jos J. de Koning, Frank C. Bakker, and Gert de Groot 1305
Effect of resistance training volume on strength and muscle thickness
David B. Starkey, Michael L. Pollock, Yoshi Ishida, Michael A. Welsch, William F. Brechue, James E. Graves, and Matthew S. Feigenbaum 1311
Leg power in young women: relationship to body composition, strength, and function
Mathew Thomas, Maria A. Fiatarone, and Roger A. Fielding 1321
Effects of moderate-intensity endurance and high-intensity intermittent training on anaerobic capacity and $\dot{V}O_{2max}$
Izumi Tabata, Kouji Nishimura, Motoki Kouzaki, Yuusuke Hirai, Futoshi Ogita, Motohiko Miyachi, and Kaoru Yamamoto 1327

Special Communications

Methods

Validity of skinfold estimates of percent fat in high school female gymnasts
Terry J. Housh, Glen O. Johnson, Dona J. Housh, Joan M. Eckerson, and Jeffrey R. Stout 1331
Comparison of anaerobic components of the Wingate and Critical Power tests in males and females
Ronald Bulbulian, Jin-Wong Jeong, and Martha Murphy 1336

Book Reviews 1342

Volume 28, No. 10, 1996

Introduction

Workshop purpose and structure: September 12, 1995
Ronald J. White S1

Doing Research in Space

Space research activities during missions of the past
Mary Ann Bassett Frey S3

Cardiovascular System Responses and Cardiopulmonary Interactions

Regulation of the systemic circulation at microgravity and during readaptation to 1G
Gunnar Blomqvist S9
Pulmonary function and cardiopulmonary interactions at microgravity
Dag Linnarsson S14
Lessons from operational cardiovascular studies in space
John B. Charles S18
Influence of gravity on cardiovascular reflexes from skeletal muscle receptors
Dieter Eßeld and Klaus Baum S23
Orthostatic hypotension and the role of changes in venous capacitance
John V. Tyberg and Douglas R. Hamilton S29

Body Fluid Metabolism and Control of Intravascular Volume

Body fluid metabolism at actual and simulated microgravity
Rupert Gerzer, Martina Heer, and Christian Drummer S32
Role of arginine vasopressin in the regulation of extracellular fluid volume
Peter Norsk S36
Destruction of newly released red blood cells in space flight
Clarence P. Alfrey, Mark M. Udden, Carolyn L. Huntoon, and Theda Driscoll S42

Clinical aspects of the control of plasma volume at μG and during return to 1G
Victor A. Convertino S45
Cardiovascular and hormonal changes induced by isolation and confinement
A. Maillet, G. Gauquelin, and C. Gharib S53
Critical discussion of research issues in body fluid metabolism and control of intravascular volume
Alan R. Hargens S56

Mechanisms Mediating Cardiovascular Adaptation to Actual and Simulated Microgravity

Neural control of the cardiovascular system: insights from muscle sympathetic nerve recordings in humans
Jere H. Mitchell and Ronald G. Victor S60
Regional blood flow in microgravity: adaptation and deconditioning
P. Arbeille, F. Achaïbou, G. Fomina, J. M. Pettier, M. Percher S70
Clinical models of cardiovascular regulation after weightlessness
David Robertson, Giris Jacob, Andrew Ertl, John Shannon, Rogelio Mosqueda-Garcia, Rose Marie Robertson, and Italo Biaggioni S80
Adrenergic vascular control
Tadaaki Mano S85
Critical discussion of research issues in mechanisms of cardiovascular adaptation to actual and simulated μG
Benjamin D. Levine S90

Integrated Physiology of μG

Animal models and their importance to human physiological responses in microgravity
Charles M. Tipton S94
Effects of altered loading states on muscle plasticity: what have we learned from rodents?
Kenneth M. Baldwin S101
Critical discussion of integrated physiology of μG
Reggie Edgerton S107
Workshop summary: final discussion session
Ronald White S111

Volume 28, No. 11, 1996

Clinical Sciences

Clinical Investigations

One year of exercise training does not alter resting left ventricular systolic or diastolic function
Ara Sadaniantz, Susan Yurgalevitch, Joseph M. Zmuda, and Paul D. Thompson 1345
Acute injuries in cross country and downhill off-road racing
Robert L. Kronisch, Ronald P. Pfeiffer, and Tony K. Chow 1351

Clinically Relevant

Effects of progressive resistance training on immune response in aging and chronic inflammation
Laura C. Rall, Ronenn Roubenoff, Joseph G. Cannon, Leslie W. Abad, Charles A. Dinarello, and Nikbin Meydani 1356

Clinical Commentary

Research on physical activity and disability: an emerging national priority
James H. Rimmer, David Braddock, and Kenneth H. Pitetti 1366

Basic Sciences

Original Investigations

Influence of carbohydrate supplementation early in exercises on endurance running capacity
Orestis-Konstantinos Tsintzas, Clyde Williams, Wendy Wilson, and Jackie Burrin 1373
Effect of CHO ingestion on exercise metabolism and performance in different ambient temperatures
Mark A. Febbraio, Phillip Murton, Steve E. Selig, Sally A. Clark, Donna L. Lambert, Damien J. Angus, and Michael F. Carey 1380
Diminished forearm vasomotor response to central hypervolemic loading in aerobically fit individuals
Xiangrong Shi, Kevin M. Gallagher, Scott A. Smith, Kristin H. Bryant, and Peter B. Raven 1388

Applied Sciences

Biodynamics

No effect of cycling experience on leg cycle ergometer efficiency
Ben L. Nickleberry, Jr. and George A. Brooks 1396
Why is countermovement jump height greater than squat jump height?
Maarten F. Bobbert, Karin G. M. Gerritsen, Maria C. A. Litjens, and Arthur J. Van Soest 1402
Effect of kinematic variables on performance in women during a cross-country ski race
Kenneth W. Rundell and James R. McCarthy 1413

Psychobiology and Social Sciences

Perception of pain following aerobic exercise
Kelli F. Koltyn, Ann Wertz Garvin, and R. Lee Gardiner, and Toben F. Nelson 1418

Physical Fitness and Performance

Changes in $\dot{V}O_{2max}$ and maximal treadmill time after 9 wk of running or in-line skate training
Edward L. Melanson, Patty S. Freedson, and Stephen Jungbluth 1422

Improved athletic performance in highly trained cyclists after interval training
Fiona H. Lindsay, John A. Hawley, Kathryn H. Myburgh, Helgo H. Schomer, Timother D. Noakes, and Steven C. Dennis 1427

Creatine supplementation does not improve spring performance in competitive swimmers
Iñigo Mujika, Jean-Claude Chatard, Lucien Lacoste, Frédéric Barale, and André Geyssant 1435

Book Reviews 1442

Volume 28, No. 12, 1996

Clinical Sciences

American Heart Association Scientific Statement

Cardiovascular preparticipation screening of competitive athletes 1445

Case Studies

Wrist pain in a young gymnast: unusual radiographic findings and MRI evidence of growth plate injury
John P. DiFiori and Bert R. Mandelbaum 1453

The os acromiale: another cause of impingement
Randall A. Swain, Franklin D. Wilson, and David M. Harsha 1459

Clinically Relevant

Electrical stimulation of denervated muscle: is it worthwhile?
Arthur Eberstein and Sharon Eberstein 1463

Basic Sciences

Original Investigations

Effect of physical exercise and vitamin C on absorption of ferric sodium citrate
Andreas Schmid, Ernst Jakob, Aloys Berg, Thomas Rußmann, Daniel König, Manfred Irmer, and Joseph Keul 1470

Maximal lactate steady state during the second decade of age
Ralph Beneke, Hermann Heck, Volker Schwarz, and Renate Leithäuser 1474

Epidemiology

Inheritance of physical fitness in 10-year-old twins and their parents
Hermine H. M. Maes, Gaston P. Beunen, Robert F. Vlietinck, Michael C. Neale, Martine Thomis, Bavo Vanden Eynde, Roeland Lysens, Jan Simons, Catherine Derom, and Robert Derom 1479

Applied Sciences

Biodynamics

Optimal pedaling rate estimated from neuromuscular fatique for cyclists
Tetsuo Takaishi, Yoshifumi Yasuda, Takashi Ono, and Toshio Moritani 1492

Role of cocontraction in the O_2 cost of walking in children with cerebral palsy
Viswanath B. Unnithan, James J. Dowling, Gail Frost, and Oded Bar-Or 1498

Special Communications

Methods

A new method for the calculation of constant supra-$\dot{V}O_{2peak}$ power outputs
Christopher Barnett, David Jenkins, Laurel MacKinnon, and Simon Green 1505

Determining blood and plasma volumes using bioelectrical response spectroscopy
Steven F. Siconolfi, Martin L. Nusynowitz, Sheril S. Suire, Alan D. Moore, Jr., and James Leig 1510

A new method for monitoring hydration at high altitude by bioimpedance analysis
Antonio Piccoli, Paolo Piazza, Donatella Noventa, Luana Pillon, and Marco Zaccaria 1517

Validity of an anthropometric estimate of thigh muscle cross-sectional area
Joseph J. Knapik, Jeffery S. Staab, and Everett A. Harmon 1523

Book Reviews 1531

ACSM Position Stand: Heat and Cold Illnesses During Distance Running i

Author Index, Volume 28 xi

Key Word Index, Volume 28 xx

Contents to Volume 28 xxxii